Lessons learnt from the case studies

A range of lessons have been extracted from the 15 case studies presented in the database described in this report. As the lessons are generic, they are broadly transferable across sectors and spatial scales. This document presents practical tips that suggest ways in which organisations can incorporate these issues into climate change adaptation planning and decision making.

The advice relates to the following issues:

- Triggers for action, or the reasons why an action is considered by the organisation.
- Continuing leadership and championship.
- Raising awareness within the organisation, amongst stakeholders and with the wider public.
- Collaborative working; how internal and external collaboration, and in particular cooperation with research institutes, has facilitated a stronger adaptation response.
- Learning from others, in terms of adaptation processes and/or adaptation actions.
- Developing a sound evidence base, either using in-house expertise or by outsourcing experts.
- Public engagement on adaptation issues.
- Embedding adaptation in decision making through policies, plans, regulations or incentives, and via close collaboration with developers.
- Funding for adaptation responses.
- Monitoring and evaluation of adaptation responses.

The lessons can be linked to different stages of the adaptation planning cycle being utilised by GRaBS partners (Figure 1). This cycle relates to a generic set of planning stages which are relevant to any organisation engaged in climate change adaptation planning and decision making. The majority of the lessons learnt from the case study database relate to the early stages of the adaptation planning cycle. Collaborative work and public engagement are best applied throughout the process of development of climate change adaptations strategies.

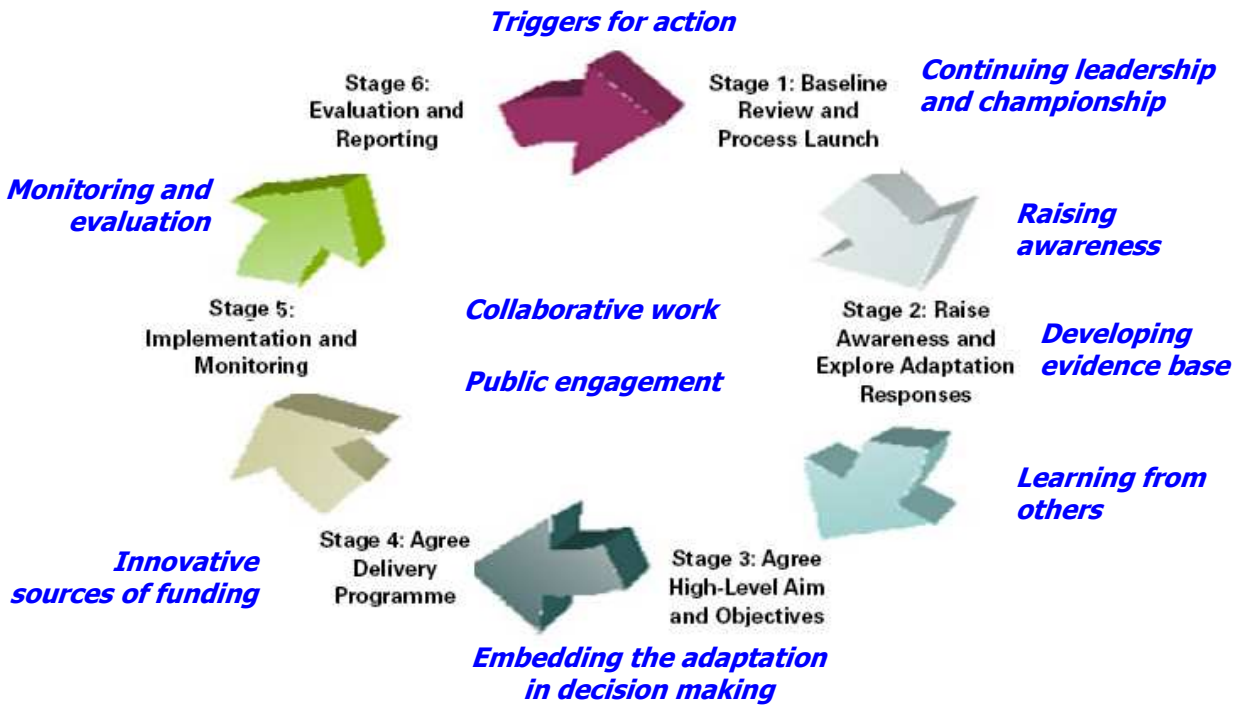

Figure 1. Links between the Adaptation Action Planning Cycle and the lessons learnt from case studies

1. Triggers for action

Increasing the profile on adaptation the policy agenda will ultimately be necessary in order to progress the implementation of adaptation responses based on green and blue spaces. The importance of adaptation to climate change impacts is often seen as a lower priority for decision makers than the need to mitigate climate change through reducing levels of CO_2 emissions. Increasing the profile of adaptation makes it more likely that it will be incorporated into the decision-making process. More often than not, an impulse is needed for adaptation to be included on the policy and plan making agenda. Six of these 'triggers for action' have been identified within the case studies:

Presence of legislative or policy frameworks at higher levels

Tip: Scan national and regional policies and strategies looking for references to adaptation to climate change and its impacts (e.g. flooding, high temperatures, fires), and references to green and blue spaces (e.g. biodiversity or recreation). Relating adaptation action plans to high level policies can give them a stronger mandate, improving buy-in amongst decision makers and potentially accelerating implementation activities.

Current problems associated with weather and climate

The presence in a particular area of frequent weather-related disasters and extreme events that cause significant losses (for example floods, wild fires, hurricanes, landslides, or heat waves) can trigger actions that build capacity to adapt to climate change. The case studies demonstrate that in a number of locations, green and blue infrastructure actions have already been take or are currently underway to respond to weather related events that will aid long term adaptation to future climate change. This is significant as in many locations, climate change is likely to exacerbate and intensify current patterns and extremes of weather and climate.

Tip: Carrying out a review of weather-related incidents that have caused life or property-loss in an area can help to identify those weather events that need the most urgent action locally. Being prepared for a reoccurrence of events that have happened in the past may help to prepare for similar events in the future, even if decisions made and actions undertaken are not explicitly associated with adaptation to long term climate change. See the UK Climate Impacts Programme advice on how to carry out a Local Climate Impact Profile: http://www.ukcip.org.uk/index.php?option=com_content&task=view&id=278&Itemid=377

Multifunctionality of green and blue infrastructure: delivering wider benefits

The achievement of other sustainability benefits associated with the use of green and blue infrastructure (e.g. climate change mitigation or biodiversity conservation) often seems to be a more significant trigger for action than the climate change adaptation agenda itself. This multifunctionality distinguishes adaptation to climate change with the use of green and blue infrastructure from other types of adaptation responses, such as structural changes to buildings or flood barriers. Achievement of other sustainability benefits means that green and blue infrastructure can often be regarded as a 'no-regrets' option, which can increase the support for such adaptation responses amongst local authorities and elected officials.

Tip: If the contribution of green and blue infrastructure can be aligned to the delivery of strategic priorities for an area, for example biodiversity conservation, improvement of quality of life, or mitigation of climate change, this will strengthen its position on the policy agenda. If green and blue infrastructure responses are taken forward as a result, this will in turn have benefits for climate change adaptation in the area.

Capitalising on previous and existing environmental initiatives

Strong environmental or ecological traditions in a given country may provide a platform for the development of adaptation initiatives based on green and blue infrastructure. Similarly, the previous involvement of local or regional authorities in environmental or sustainability initiatives can provide a useful springboard for the development of adaptation actions.

Tip: Using previous/ongoing environmental and sustainability-oriented initiatives can support the process of developing green and blue infrastructure adaptation responses. The initiatives that are particularly useful are those focused on climate change mitigation, recreation, and biodiversity conservation. Utilising established networks and partnerships can provide a springboard for a collaborative approach to adaptation and public engagement.

Need for development despite climatic impacts

While environmental concerns and economic growth are sometimes seen as conflicting issues, the case studies demonstrate examples of where the inclusion of green and blue space adaptation responses measures is possible in conjunction with intensive urban development and expansion.

Tip: Case studies in this database (and other sources of information, see Appendices 1 and 2 to the main report) can be used to identify methods of incorporating green and blue spaces into development in a manner that does not constrain the economic growth and urbanisation of an area. It is also important to emphasise benefits stemming from the inclusion of green and blue infrastructure in developments (e.g. energy saving, higher rents, higher property prices, etc).

Improving competitiveness through environmental improvements

Urban green spaces can significantly enhance the image of a city. This is particularly true for cities and regions where their history has been associated with heavy industry, or in areas in need of urban regeneration.

Tip: Green and blue infrastructure can be promoted as an important asset, which has the potential to improve an area's image and may ultimately raise the competitiveness of an area. This could bring economic benefits including increased inward investment, which may in turn stimulate further expansion of green and blue infrastructure. .

2. Continuing leadership and championship

In many case studies, establishing adaptation and/or green and blue infrastructure on the decision-making agenda was a result of the enthusiasm and commitment of one individual, one organisation or a particular stakeholder partnership. Moreover, securing a leadership role was often key to the success of an initiative.

Tip: Often one department/agency/organisation within a city or region will be more active in the field of adaptation to climate change and/or the promotion of green and blue infrastructure. Sometimes one committed individual may be leading the adaptation agenda. Close collaboration with this unit/organisation/person, including strengthening their status through internal mechanisms or official subcontracting, can enhance the development of green and blue infrastructure adaptation responses.

3. Awareness raising

The need for adaptation measures is generally less well recognised and understood than climate change mitigation responses. Therefore, there is a need for awareness raising and knowledge sharing actions within organisations preparing adaptation responses, amongst stakeholder groups and with the wider public. There is also a need to increase awareness of the adaptation functions of green and blue infrastructure, as these are often secondary to the achievement of the key goals of related initiatives explored within this case study database. The case studies have highlighted examples of successful awareness raising approaches both within organisations developing adaptation responses, with external stakeholders and with the public.

Internal awareness raising

Tip: Providing awareness-raising activities for staff on adaptation issues, bringing in external assistance where required, can benefit the development of adaptation responses. Involving research institutes or non-governmental organisations with an interest in adaptation and/or green infrastructure will help to secure good quality of information for decision making. This database and others like it can raise awareness of a range of possible solutions that could be used in building adaptive capacity or developing adaptation responses in organisations pursuing this agenda.

External awareness raising

Tip: The use a variety of approaches to raise awareness of adaptation issues amongst the public, including simple and engaging advertisements on TV and radio and in newspapers, are a good way to communicate a message to a wide range of people. It the target audience is smaller, meetings and study tours are a good way to familiarise people with the adaptation agenda. When working with developers, provide them with as much information as possible in a suitable format can enhance collaborative relationships.

4. Importance of collaborative working

Climate change adaptation is a complex issue which impacts across different stakeholders, sectors and departments of individual authorities. Therefore, cross-departmental working, and establishment of partnerships with organisations outside the local authorities is crucial for the effective development and implementation of comprehensive and achievable adaptation strategies and plans.

Internal collaboration

Tip: Identification of the departments/divisions within the organisation which have a stake in climate change adaptation (i.e. are affected by climate change impact or can help to implement adaptation responses) or in green and blue infrastructure issues can then lead to the development of an adaptation network. The ideal size of these groups will depend on the climate change impact(s) being addressed and the nature of the adaptation response being developed. Developing a list of tasks and a schedule of meetings can help to formalise the process. Given the importance of land use issues for the development and implementation of green and blue infrastructure adaptation responses, ensuring that the department responsible for spatial planning and development control is represented in the group is vital.

External collaboration

Tip: Utilising existing networks and partnerships should be encouraged. It is also important to identify organisations and agencies with a stake in climate change adaptation and green and blue spaces. Investigating possibilities of collaboration with national or regional agencies, or with neighbouring authorities, can also strengthen adaptation responses, as development of vertical links between different levels of government ensures that adaptation initiatives benefits from competencies at various spatial scales. Involving non-governmental organisations, recognised experts and research institutes is a constructive way of drawing on a wider range of knowledge and experience. A partnership model with a clear role for engaged stakeholders should ideally be established.

5. Learning from others

The application of good practice from other cities was common amongst the 15 case studies explored. The case studies also reveal that organisations are actively sharing their good practice with others. One of the most effective ways to learn from others is by participating in networks of cities and 'research-to-practice' projects focusing on green infrastructure and adaptation issues, and several case studies benefited from participation on European-funded projects.

Tip: This database, and other sources of information listed in Appendices 1 and 2 of the main report, offer insights into adaptation practice for organisations to draw on. Organisations should be encouraged to tell others about innovative adaptation approaches they have developed by including information on their organisation's website. Joining existing networks of cities, or relevant organisations locally, nationally or internationally, can support adaptation activities. If there are no networks locally, establishing one could be possible. Becoming partners in projects which focus on exchange of experiences, and participating in seminars, conferences and study tours offered, can also be beneficial. Similarly, taking part in programmes that involve research institutes can provide cutting-edge knowledge and help to develop an evidence base needed to implement adaptation actions (see below).

6. Developing a sound evidence base

A good science and knowledge base is a prerequisite for designing and implementing effective adaptation responses. This relates to both the spatial targeting of adaptation responses through considering locations at risk of climate change impacts (which can inform the development of spatial plans) and the nature of the actual adaptation actions themselves (which supports the development of design guidance documents for example). The evidence base can be developed utilising in-house expertise, or by outsourcing the task to research institutes, consultancies and other organisations.

In-house expertise

Tip: Reviewing the existing evidence base held within an organisation on weather and climate change and related impacts, and also the available skills base (is there a meteorologist, green space management specialist, or sustainability officer who could compile or collect data?) is important to establish whether additional data is needed and if there is the in-house capacity to gather it. These insights can be used to determine whether employing an external climate change expert is necessary in order to gather data on climate impacts that are the most critical for the area. It may be worthwhile considering setting up a small in-house team to work on climate issues in order to develop capacity within the organisation.

Outsourcing research

Tip: Identifying and linking to local research institutes and non-governmental organisations with research expertise in climate change science, climate impacts and green infrastructure can bring mutual benefits. Such collaborations help to raise the profile of research outputs, and provide organisations responsible for implementing adaptation responses with good quality information to work with. Consultancy companies can also provide this function.

7. Engaging the public

Adaptation responses should ideally focus on the needs of people and communities, as it is often maintaining and enhancing quality of life and liveability of cities and urban areas that the initiatives are targeted towards. Further, the successful implementation of adaptation actions will sometimes require public support, for example to protect and maintain green spaces. The majority of the 15 case studies included elements public engagement, ranging from informing citizens about climate change impacts and the need to act, providing incentives for city residents to implement climate change adaptation actions, and actively engaging residents in decision making.

Tip: Engaging residents in the development and implementation of adaptation responses from the start of the process will reduce the probability of people objecting to issues such as increasing green space at the expense of new development. Providing information via the media (TV, radio, newspapers) and webpages dedicated to adaptation and green infrastructure can aid adaptation responses. Public engagement going beyond information provision, i.e. consultation, participation in decision making, incentive schemes and collaborative administration, can further enhance the potential success of adaptation initiatives.

8. Embedding climate change adaptation actions in decision-making

Initiatives aimed at adapting urban areas to climate change impacts can take various forms, including the form of guidance documents, new or revised policies or regulations, dedicated adaptation action plans, or subsidy programmes. In particular in the last case new funding streams may have to be identified. All types of adaptive action require close collaboration with the stakeholders.

Policies and strategies

Tip: Developing high level policy statements referring to climate change adaptation with the use of green and blue infrastructure can set a context for local scale action. If the policy framework does not provide this, adaptation can be integrated within other strategies related to environmental improvements, e.g. biodiversity strategies. Inclusion of adaptation into specific site development policies can also aid action 'on the ground.'

Clear action plans

Tip: Once baseline information has been gathered and broad objectives discussed, an adaptation action plan with clearly assigned responsibilities for all participating parties, including city departments and/or stakeholders in a wider partnership, can be developed. Realistic time frames for the completion of actions should ideally be set. All interested parties should be involved in the development of the action plan.

Local regulations

Tip: If the legal system in allows it, developing regulations for land use and buildings which enforce the implementation of green and blue space adaptation measures can be a very effective way of enhancing adaptation in practice. Regulations may only apply to specific zones in the city, where the adaptation actions are needed the most.

Use of subsidies and incentives

Tip: The development and implementation of a subsidy or incentive programme, which would encourage the uptake of green and blue space adaptation measures by the developers and residents, can be a successful way of enhancing adaptation responses in practice. Identifying the stages of the planning permission process which provide the greatest obstacles for developers (often the amount of time involved), and trying to incentivise the use of adaptation measures by improving these elements of the planning process, could also prove to be a beneficial strategy.

Funding of adaptation actions

Tip: Investigating the possibility of generating funds from environmental compensation programmes, for example from developers seeking to obtain planning permission in environmentally sensitive areas, can provide funding for adaptation responses. These can also be supported by sources of funding available for different departments in the organisation, from different levels of government, and from international sources.

Working alongside the stakeholders

Tip: Establishing a clear and transparent process that guides residents and developers through programmes of subsidies, incentives, or regulations can improve their implementation. Setting up a dedicated team to deal with this process and to answer enquiries, and providing information about the initiatives avoiding jargon, can also support the adaptation process.

9. Monitoring and evaluation of success

Monitoring of the impact of the adaptation strategies is necessary in order to assess their effectiveness, provide adjustments and ensure learning from the process.

Tip: Employing an external party to evaluate the process leading to development of the adaptation initiative can provide valuable information. Investigating which of the adaptation initiative's outcomes are measurable, and setting up the mechanisms to measure them, can also be helpful. Similarly, when developing policies, setting clear targets against which the progress can be measured will support monitoring. Action plans should specify time frames for completion of tasks and identify organisations accountable for delivery of the tasks.